

# MATERIALS SCIENCE EDUCATIONAL SEMINAR

Swagelok

Swagelok Ibérica

## DO YOU WANT THE LATEST INDUSTRY KNOWLEDGE ON MATERIAL SELECTION?

Do you need to increase your knowledge in selecting optimal materials of construction for demanding applications?

Then this seminar led by industry expert Dr. Gerhard Schiroky will be of significant interest to you! This event provides a basic knowledge of principles of material science, along with information on corrosion and other factors affecting material properties.


### Course objectives

Understand critical concepts surrounding the basic nature and behavior of materials, such as:

- A simple atom-level view of metals
- Microstructural characteristics of materials
- Ferritic, austenitic, and duplex alloys
- Mechanical properties of materials



- Explain different types of corrosion and how specific alloys resist corrosion.
- Discuss sour gas corrosion, NACE standards, and component selection for compliance with NACE standards.
- Select appropriate materials of construction for various applications, considering factors such as pressure ratings, temperature ratings, corrosive threats, and compliance with standards and specifications.
- Explain various alloy options, along with their advantages and disadvantages.
- Describe Norsok and ISO standards as they relate to materials selection and corrosion.

 Time: 08:30 - 15:00

### Your instructor

Dr. Gerhard Schiroky joined Swagelok in 2000 and is responsible for helping customers find solutions to meet their material requirements and identifying opportunities for providing



value-added solutions. Gerhard worked closely with Sandia National Laboratories and leading R&D organizations in Japan to help customers with the selection of alloys for high pressure gaseous hydrogen applications. He has also investigated the role of alloy constituents on corrosion of welded high purity 316L stainless steels.

More recently, Gerhard evaluated the corrosion of fluid system components in offshore installations, working with engineers on the analysis of corroded products and providing guidance on how to improve the quality and reliability of these installations.

Gerhard has an in-depth knowledge of materials-related industry standards and standard specifications. He routinely provides customers with a better understanding of the NACE MR0175/ ISO 15156 international standard for the selection of materials for sour gas applications. He has developed project plans for improved and new alloys, from which future fluid system components have been constructed, in addition to identifying and evaluating novel materials that offer performance or cost advantages. Gerhard has published many articles on 316L stainless steel, corrosion and the effects of alloy composition.

His work has been featured in Semiconductor International, World Oil and Offshore magazines. He received his doctorate in Materials Science and Engineering from the University of Utah. An author of numerous technical publications on diverse topics, including fluid dynamics and materials science, Gerhard has been named on over 20 patents.